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TEST PROGRAM FOR THE DIGITIZED MEASURING LIGHT TABLE (DIMLIT)

REFERENCES: (1) Development Objectives for a Digital Control Console for use with an On-Line Measuring System

25X1 (2) [redacted] Proposal P-103, A Proposal for a Digital Control Console

25X1 (3) [redacted] DK-316, Digital Light Table Evaluation Test Plan

1. Introduction

1.1 The digitized measuring light table system is a combination of
25X1 4 units: 1) [redacted] 940 MCE Light Table, 2) [redacted] Digital Reading Heads
25X1 & Scales, 3) [redacted] Digital Control Console, and 4) a Teletype KSR-35 for computer communications.

1.2 Items 1 through 3 will all be items for evaluation. Item 4, the teletype, is in no way an experimental item and will not be tested.

2. Acceptance Testing

2.1 Acceptance Testing of the 940 MCE Light Table.

2.1.1 The light table, complete with vacuum hold-down device, optics carriage, film transport system, and power supply, will be inspected for quality of workmanship and evidence of safety hazards.

2.1.2 The light source will be turned on. After 30 minutes of operation, the light output at the center of the table will be measured. The luminance must be at least 2200 foot-lamberts.

2.1.3 The electric clutch mechanism must fully release the optics carriage when deactivated. When activated, it must restrain movement in the X & Y direction on application of forces up to 10 pounds.

2.1.4 The focusing movements, coarse and fine, must move the optics mount smoothly, without discernible discreet steps.

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2.1.5 The film transport system will be checked for capability of handling all widths of film up to 9.5" in quantities up to 500 ft.

2.1.6 The vacuum system will be activated and judged on its ability to hold roll film and chips in place on the table.

2.1.7 The masks will be moved into place and checked for their ability to eliminate glare from unused lighted surfaces and ease of operation.

2.1.8 With all systems in operation, a brief survey of noise output will be made to insure that the output of the system is within normal limits.

2.2 Acceptance Testing of the Digital Heads and Control Console

2.2.1 The attachment of the scales and the reading heads will be inspected to insure that no slippage is possible or damage probable.

2.2.2 The construction of the console will be inspected for quality of workmanship, usability, and general safety considerations.

2.2.3 The DIMLIT and Teletype will be connected on-line and the contractor will demonstrate its "successful operation" per ref. 1) para. 2.2.

3. Engineering Tests

3.1 Engineering Tests on the 940 MCE Light Table.

3.1.1 The amperage drawn by the unit will be measured with all systems in operation.

3.1.2 The light table will be turned on. The luminance at the center of the table and the temperature on the lighted surface under 2.0 density film will be plotted until these parameters stabilize.

3.1.3 After light and temperature stabilization, luminance readings over the surface of the table will be taken and a light contour plot made.

3.1.4 The force required to move the optics mount and carriage will be measured with the clutch on and with the clutch off.

3.1.5 The parallelism of the glass surface and the horizontal plane of motion of the optics carriage will be measured.

3.1.6 The distribution of the hold-down force of the vacuum system will be checked and plotted.

3.1.7 Vibrations at the optics mount will be measured if visual observations show this to be necessary.

3.2 Engineering Tests of the Digital Reading Heads and Control Console

3.2.1 Close inspection will be made of the methods of mounting the scales and the reading heads of the Digitizing System to insure that relative movements which would cause errors will not occur.

3.2.2 With the system off-line, the reading heads will be utilized to perform gross measurements on an etched scale with 1 mm. increments at distances up to 100 mm. The reference reset capability will be checked.

3.2.3 With the system on-line, the various functions of the computer controlled measurement system will be used. This will include distance, azimuth, and area. For these tests, standard grids and imagery with known distances will be utilized. These tests will be run repeatedly to establish accuracy and reliability. Various optics, such as Zoom 70, [redacted] and
25X1 [redacted] will be mounted and used to ascertain if any or all can be used with equal accuracy and ease of operation.

3.3 Those tests specified in ref. 3 which have not been covered in the previous listings will be performed with the assistance of DED Human Engineering Specialists.

4. Operational suitability tests will be carried out in the Technology Integration and Check-Out Facility (TICOF). Planning for these tests is
25X1 under contract with [redacted] The present schedule puts DIMLIT in TICOF in January 1969. The test plans for this operational test, when received from
25X1 [redacted] will be reviewed. The effort will be coordinated with operational divisions and plans finalized.

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Distribution:
25X1 1 - NPIC/IEG [redacted]
1 - NPIC/TSSG/DED
25X1 1 - IAS [redacted]
1 - TSSG/TPD
1 - TSSG/TPD/TEB